ABSTRACT:

Conventional TCP suffers from inability to detect frequent link failure in MANET and consequently could not adjust RTO for reconstructed route. Packet losses due to link breakage must be differentiated from congestion loss to discover link breakage. Moreover, after link breakage, retransmission timeout in standard TCP becomes too long due to successive back-off executions. Using this long RTO for rebuilt route forces sender to remain idle unnecessarily in case of future packet loss. In this paper, a new End-to-End approach which entirely works in transport layer is proposed to improve TCP performance. It distinguishes link failure loss from congestion loss based on fluctuation in history of queue usage rate. Ascending growth of queue usage value intensifies probabilities of congestion losses while averaged queue usage values around fixed value can be sign of link failure losses. After temporary link failure detected and packets from rebuilt route received, new approach compares characteristics of reestablished route with broken route in term of Relative On-way Trip Time and number of Hops. Then sender decides to increases RTO to prevent packet retransmission overhead or decreases RTO to resume transmission during unnecessary idle time. Simulation results which are done under different conditions by ns2 illustrated that new approach enhances TCP performance up to 10%.